

Notice of Allowability

Application No.

09/755,572

Applicant(s)

ANG ET AL.

Examiner

Hsien-Ming Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/26/04.
2. ☒ The allowed claim(s) is/are 1-5 and 8-11.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☒ ~~CORRECTED~~ ^{FORMAL} DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☒ including changes required by the attached ~~Examiner's Amendment~~ / Comment ~~in~~ in the Office action of Paper No./Mail Date 4/12/04.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

Hsien Ming Lee 4/13/04

DETAILED ACTION

Remarks

1. The rejection, as set forth in the previous Office Action, is withdrawn in response to applicant's arguments.
2. A formal drawing will be submitted by the applicant, as communicated with Rosemary L. S. Pike on April 13, 2004, in response to the examiner amendment as set forth in this Office Action, wherein a reference number "36" is added in Figure 7.
3. Claims 1-5 and 8-11 are pending in the application.

Examiner's Amendment

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Rosemary L. S. Pike (Reg. No. 39,332) on April 12, 2004.

5. The application has been amended as follows:

In claim 1, at line 16, replace "one said first trenches" with -- said first trench --; at line 25, replace "first contacts" with -- first contact openings --; and at lines 28-29, delete "in each of said active regions --".

In claim 8, at line 17, delete "one" after "wherein"; at line 26, replace "first contacts" with -- first contact openings --; and at lines 29-30, delete "in each of said active regions --".

In Figure 7, add a reference number "36" to refer to interlevel dielectric layer, as shown in marked-up Figure 7.

Allowable Subject Matter

6. ~~Claims 1-5 and 8-11 are allowed.~~

7. The following is an examiner's statement of reasons for allowance:

The prior art of record, Babcock et al. (US 2002/0047155), teaches a method of forming a silicon-on-insulator device the fabrication of integrated circuits, comprising:

- providing a silicon layer 265 overlying an oxide layer 280 on a silicon semiconductor substrate 290;
- etching first trench 275 into said silicon layer 265 wherein said first trench 275 extends partially through said silicon layer 265 and does not extend to underlying said oxide layer 280 and wherein no implant is made underlying said first trench 275;
- filling said first trench 275 with insulating layer such as oxide (paragraph [0022]);
- etching second trenches 270 into said silicon layer 265 wherein said second trenches 270 extend fully through said silicon layer 265 to underlying said oxide layer 280 and wherein said second trenches 270 separate active areas 220, 250, 260 of said semiconductor substrate and wherein one said first trenches 275 lies within each of said second said active areas 210;
- filling said second trenches 270 with an insulating layer (paragraph [0022]);
- thereafter forming gate electrodes 200 or 520 and associated and drain regions 210/220 or 490/500 and on said silicon layer 265 between said second trenches 270; and
- depositing a dielectric layer 530 overlying said gate electrodes 230 and 240 (Fig.6B).

In contrast, Babcock et al., neither teach nor suggest depositing an interlevel dielectric layer overlying said gate electrodes; opening first contact openings through said interlevel

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dielectric layer to underlying said source and drain regions and opening a second contact opening through said interlevel dielectric layer; wherein said second contact opening contacts both said first trench and one of said second trenches; and filling first and second contact openings with conducting layer to complete formation silicon-on-insulator device in said fabrication integrated circuits.

The primary reason for allowance of the claims is that aforementioned patentably distinct features show unexpected results as compared to the prior art.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hsien-Ming Lee whose telephone number is 571-272-1863. The examiner can normally be reached on M-F (9:00 ~ 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Hsien-Ming Lee

Examiner

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April 13, 2004

Hsien Ming Lee

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